REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 7, 8, 12, 13, 17 and 18 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Maeda et al.; and Claims 7-18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kong et al. in view of Maeda et al. New Claims 19-22 have been added and thus, Claims 7-22 remain active.

Considering first then the Examiner's rejection of Claims 7, 8, 12, 13, 17 and 18 under 35 U.S.C. § 102(b) as being anticipated by Maeda et al., Applicants note that Claim 7 has now been amended to claim a member which has a barrel type susceptor disposed therein and which has surfaces which are equally distanced from and are positioned parallel to the surfaces of said barrel type susceptor and wherein the barrel type susceptor and said member comprise a heater. Support for this limitation is submitted to be found in previously submitted Claims 7 and 9 as well as the description appearing in paragraphs [0011] and [0015] as originally filed which describes trapezoidal planes of the internal susceptor 2 and trapezoidal planes of the external member 3 as being disposed so as to adjusted to be parallel or to be substantially parallel. Similar limitations have also been added to independent Claim 12.

In view of the foregoing, it is noted that the susceptor of the present application comprises (a) a member having surfaces which are substantially equally distanced from and are positioned parallel to the surfaces of the parallel type susceptor. In view of these features, it is possible to maintain the distance between the barrel type susceptor and an opposed member so as to be substantially constant. Furthermore, since the barrel type susceptor and the member serve as a heater as presently claimed, it is possible to maintain the temperature of the barrel susceptor and the member substantially constant. In addition, with both of the

above-noted features, each part of the substrate is continuously heated at a substantially constant distance from the member.

Next considering then the rejection of Claims 7-18 under 35 U.S.C. § 103(a) as being unpatentable over Kong et al. in view of Maeda et al., it is submitted that each of Claims 7-18 also merit indication of allowability based upon the above-noted arguments with respect to the patentability of independent Claims 7 and 12 and in view of the dependency of all remaining claims from such independent claims.

Applicants submit that neither Maeda et al. nor Kong et al. disclose the above-noted features and do not disclose an epitaxial growth device in which a heat insulating material is disposed outside the susceptor. It is therefore submitted that the teachings and disclosure in these reference do not correspond to the claimed invention in the present application. In particular, the cited documents fail to describe or indicate the effects that substrates are evenly heated and that a plural highly-uniform epitaxial films are simultaneously obtained as disclosed in the present application.

Kong et al., more particularly, fails to teach that the outer surfaces of the susceptor 50 oppose the second cylinder 57 with a constant distance therebetween. Furthermore, since the first cylinder 54 is polygon-shaped whereas the second cylinder 57 is a circular cylinder in Kong et al., such reference does not teach that every part of a wafer disposed on the susceptor 50 is equally distanced from the second cylinder 57. Furthermore, the specification in Kong et al. merely teaches that the annular space A is sufficiently large to permit the flow of gases and is sufficiently small to encourage the first and second cylinders 54 and 57 to reach substantially the same temperatures (see column 6, first paragraph). This is based on a technical concept of making the temperature of the wafer surface uniform by reducing the distance between the susceptor and the cylinder. This technical concept clearly does not teach to the aforesaid effects of the subject application, that is, (i) that every part of the wafer

surface is uniformly heated by keeping the surface distance between the susceptor and the opposed member constant for every part, and (ii) that uniform film formation is realized by keeping the flow rate of a material gas uniform.

In addition, Maeda et al. teaches an improvement in the efficiency of use of a material gas by the feature. However, Maeda et al. fails to teach that the rectifying tube 10 and the susceptor 3 shown therein are disposed so as to be parallel and that these members are equally distanced from one another. Furthermore, since the spindle 6 rotates at the time of epitaxial growth, the distance between the rectifying tube 10 and the wafer constantly changes, and it follows that the flow rate of the material gas is inconsistent. In addition, Maeda et al. fails to teach the advantages of uniform heating. Also, in Maeda et al. the heater 8 is disposed outside the reactor 1, and the rectifying tube 10 does not function as a heater. It is therefore submitted that a wafer cannot be uniformly heated in this arrangement, as compared to the subject application.

Consequently, it is submitted that one obviously cannot obtain the invention claimed in the present application by combining the teachings and disclosure of Kong et al. and Maeda et al. It is also submitted that a person skilled in the art would not obtain the invention claimed in Claims 7 and 12 of the subject application even if the teachings of these references were conbinable. In view of the foregoing, it is submitted that independent Claims 7 and 12 as well as all claims dependent therefrom patentably define over either Maeda et al. or Kong et al. when combined with Maeda et al.

Applicants also note that new Claims 19-22 have been added. In this regard, the limitations of Claim 9 are believed to be supported by the discussion appearing at page 15, paragraphs [0031] which confirms that due to the improvement in heating efficiency owing to efficient heating of the susceptor and wafer and disposition of the insulating material which alleviates heating load, the susceptor and inner wall are inhibited from deteriorating. Thus, it

is submitted, as would be understandable to one of ordinary skill in the art, that since there is no deterioration in the wall, no change takes place with respect to the distance between the surfaces of the plurality of substrates disposed on the barrel type susceptor and the surfaces of the member, as claimed in Claim 19. It is also believed that the discussion at page 11, paragraph [0021] as originally filed results in this interpretation insofar as it is indicated that the distance between planes of the internal susceptor 2 and the external member 3 is in the range of 5 to 60 mm and desirably in the range of 10 to 25 mm. This disclosure also serves to support Claim 21 which is similar to Claim 19 but which depends from independent Claim 12. It is also submitted that the disclosure set forth in Figures 1-5 support the limitation that the distance between the surfaces of the plurality of substrates disposed on the barrel type susceptor and the surfaces of the member are such that they are equally distanced from and are parallel to the surfaces of the barrel type susceptor, respectively. New Claim 20, which depends from Claim 7 and new Claim 22, which depends from Claim 12, are also submitted to be supported by the disclosure set forth in Figures 2 and 3 as well as the description in paragraph [0014] as originally filed which makes reference to the fact that "a heat insulating material 6 is disposed along an outer periphery portion of the susceptor 1".

Applicants submit that each of Claims 19-22 contain limitations having no corresponding teaching or disclosure in the above-noted references of Kong et al. and Maeda et al. Moreover, based upon the dependency of such claims from either Claims 7 or 12, it is submitted that such also merit indication of allowability.

With respect to new Claims 20 and 22, it is noted that since a heat insulating material is disposed outside the susceptor as claimed in such claims, the advantage is obtained of the temperature uniformity of the wafer surface being improved as compared with conventional technologies. This maintains the distance between the substrates and the opposed member so as to always be constant even during the epitaxial growth and hence the substrates are

uniformly heated at the time of the semiconductor epitaxial growth, with the result being that a plurality of highly-uniform epitaxial films are simultaneously obtained. Applicants furthermore submit that the heat insulating material assists in material gas flowing into the susceptor and significantly improves the heating efficiency. Such also makes it possible to lower power consumption and to realize epitaxial growth under rapid temperature increase and high temperatures. In addition, since the burden of heating is decreased, damage to the wafer due to H_2 etching is restrained and deterioration of the susceptor and the inner walls is also restrained.

In view of the foregoing, an early and favorable Office Action is believed to be in order and the same is also hereby respectfully requested.

Respectfully submitted,

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